DEPARTMENT OF APPLIED MATHEMATICS
應 用 數 學 系

The Hong Kong Polytechnic University
Department of Applied Mathematics

Colloquium

Imitative Dynamics for Games with Continuous Strategy Space

by

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Abstract

This paper studies imitative dynamics for games with continuous strategy space. We define imitative dynamics---which include the replicator dynamic as a special case---as evolutionary dynamics that satisfy the imitative property and payoff monotonicity. Our definition of payoff monotonicity, which we use Radon-Nikodym derivatives to define, is weaker than the one proposed in Oechssler and Riedel (2002). We find that Oechssler and Riedel (2002)'s definition is too strong, and our definition is more adequate than theirs. We show that for a broad class of payoff functional dynamics, payoff monotonicity a la Oechssler and Riedel (2002) is equivalent to aggregate monotonicity in the sense of Samuelson and Zhang (1992). We then provide sufficient conditions for imitative dynamics and general evolutionary dynamics to be well-defined. Finally, with our definition of payoff monotonicity, a number of results that are standard for finite games extend to the case of games with continuous strategy space.

Date : 19 August 2016 (Friday)
Time : 2:30p.m. – 3:30p.m.
Venue : TU801, The Hong Kong Polytechnic University

*** * * ALL ARE WELCOME * * ***